

City of Houston

Department of Public Works and Engineering

WATER QUALITY REPORT

1999

The City of Houston’s drinking water meets or exceeds all Texas Natural Resource Conservation Commission (TNRCC) and Environmental Protection Agency (EPA) requirements.

Safe Drinking Water Act Amendments

Since October 1999, all community water systems are required to provide customers with an annual report on the quality of their drinking water. This information has always been available to the customer but now it will be distributed to the customer at the same time each year in a report form.

Sources of Drinking Water

The sources of tap water and bottled water include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or human activity. Contaminants that may be present in source water include: microbial, such as viruses and bacteria, inorganic, such as salts and metals, pesticides and herbicides, organic chemicals, including synthetic and volatile organic chemicals, and radioactive.

Presence of Contaminants Does Not Necessarily Indicate That Water Poses A Health Risk

More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency’s **Safe Drinking Water Hotline 800/426-4791**.

City of Houston Water Sources

The City currently draws 65% of its treated drinking water from its four surface water treatment plants. These plants produced an average of 264 million gallons per day (MGD) in 1999. Surface water comes from the San Jacinto River, through Lakes Conroe and Houston, and the Trinity River through Lake Livingston. The remaining 35% comes from 197 permitted wells at 112 separate groundwater plants. These are very deep wells, producing water from the Evangeline and Chicot Aquifers, and are not vulnerable to any surface contamination.

1999* CONTAMINANTS DETECTED IN YOUR DRINKING WATER; NONE WERE ABOVE THE MCL

1. Main System 1010013

CONTAMINANT (units)	MCLG	MCL (max. level allowed)	City of Houston SURFACE WATER	City of Houston GROUNDWATER	SOURCES OF CONTAMINANTS
Alpha emitters (pCi/l)	0	15	ND	3.8 (1998) 1 site	Erosion of natural deposits
Arsenic (ppb)	N/A	50	ND	4.9 average <2.0 - 19.6	Erosion of natural deposits
Atrazine (ppb)	3	3	<0.21 average <0.21 - 0.42	ND	Runoff from herbicide used on row crops; commonly found in surface water at low levels
Barium (ppm)	2	2	0.038 - 0.049	0.06 - 0.399	Discharge of drilling wastes; erosion of natural deposits
Chromium (ppb)	100	100	ND	< 10 average ND - 10	Erosion of natural deposits
Copper (ppm)	AL=1.3	90 % below AL=1.3	0.146 at customer tap - none exceeded AL**	0.146 at customer tap - none exceeded AL**	Erosion of natural deposits; corrosion of household plumbing
Ethylbenzene (ppb)	700	700	ND	<0.5 average <0.5 - 0.5	Petroleum products
Fluoride (ppm)	4	4	0.63	0.27 average 0.1 - 0.9	Water additive which promotes strong teeth
Lead (ppb)	0	90% below AL=15	5.2 at customer tap - one exceeded AL**	5.2 at customer tap - one exceeded AL**	Erosion of natural deposits; corrosion of household plumbing
Nitrate (ppm)	10	10	0.8 average 0.76 - 0.83	0.123 average <0.01 - 0.41	Runoff from fertilizer use; erosion of natural deposits
Nitrite (ppm)	1	1	0.02 average 0.00 - 0.03	ND	Runoff from fertilizer use; erosion of natural deposits
Selenium (ppb)	50	50	ND	<2.0 average <2.0 - 4.4	Erosion of natural deposits
Simazine (ppb)	4	4	0.03 average 0.00 - 0.15	ND	Herbicide
Total Radium (pCi/l)	0	5	ND	0.7 (1998) (1 site)	Erosion of natural deposits
Total Trihalomethanes (TTHMs) (ppb)	0	100	36 average (22 - 57 range)	36 average (22 - 57 range)	By-product of drinking water disinfection
Xylenes (ppm)	10	10	ND	<0.001 average <0.001 - 0.0025	Petroleum products

* 1999 data unless otherwise specified ** Includes groundwater and surface water sites.

UNREGULATED CONTAMINANTS;
NONE WERE ABOVE THE MCL

CONTAMINANT (units)	City of Houston	SOURCES OF CONTAMINANTS
Chloroform (ppb)	4.61 average <0.5 - 37	By-product of drinking water disinfection
Bromodichloromethane (ppb)	2.97 average <0.5 - 38	By-product of drinking water disinfection
Dibromochloromethane (ppb)	2.14 average <0.5 - 33	By-product of drinking water disinfection
Bromoform (ppb)	0.78 average <0.5 - 16	By-product of drinking water disinfection

Definitions

Maximum Contaminant Level (MCL): The highest level of a contaminant allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available technology.
Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.
Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

MICROBIOLOGICAL AND PHYSICAL QUALITY

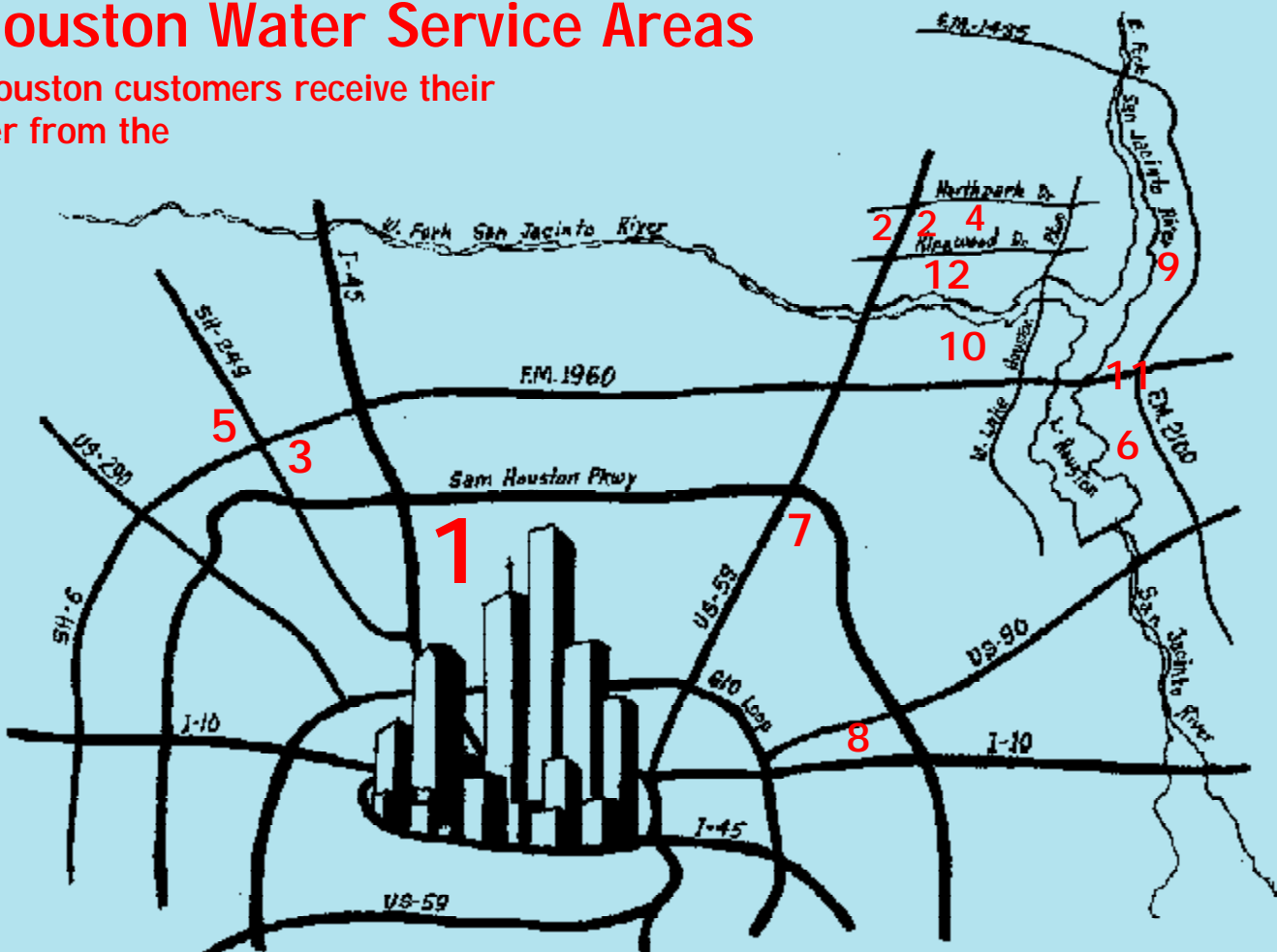
CONTAMINANTS (units)	MCLG	MCL (max. level allowed)	City of Houston
Total Coliforms	0	Less than 5% positive	Highest monthly % of positive samples = 1.07
E. Coli	0	Less than 5% positive	Total number of positive samples = 1
Viruses, Giardia, Legionella	0	TT	ND
Turbidity (clarity)	No MCLG	95% less than or equal to 0.5 NTU	99.8% less than 0.2 NTU Highest monthly average = 0.098 NTU

Key to Tables

pCi/l=picocuries per liter(a measure of radioactivity); **ND**=not detected; **NTU**=nephelometric turbidity units; **ppm**=parts per million
ppb=parts per billion

City of Houston Water Service Areas

Most City of Houston customers receive their drinking water from the



Key to Map Areas

WATER SYSTEM	SUBDIVISION / AREA
1. City of Houston - Main	City of Houston customers in water service area within city limit lines, except those areas listed below (areas 2-12).
2. Montgomery County MUD 48	MUD 58
3. Harris County MUD 159	Willowbrook Mall The Commons at Willowbrook
4. Utility District 5	Kingwood
5. Willowchase	Willowchase
6. Spanish Cove	Spanish Cove
7. Harris County WCID 76	Riverwood
8. Hunterwood	Hunterwood
9. District 82	Calvin Village, Hidden Echo Magnolia Point, Paradise Oaks Plantation Hills
10. Belleau Wood	Belleau Wood
11. District 73	Covecrest, Lakewood Heights, Lakeside Manor, Lakewood Village, Scotts Point, Shorewood, Trott
12. Forest Cove	Forest Cove

THESE TABLES SHOW WHAT
CONTAMINANTS WERE DETECTED IN
YOUR DRINKING WATER IN 1999*;
NONE WERE ABOVE THE MCL.

3. Harris County MUD 159

CONTAMINANT (units)	MCLG	MCL (max. level allowed)	City of Houston GROUNDWATER	SOURCES OF CONTAMINANTS
Alpha emitters (pCi/l)	0	15	4.7 (1997)	Erosion of natural deposits
Arsenic (ppb)	N/A	50	2.8 (1997)	Erosion of natural deposits
Barium (ppm)	2	2	0.245 (1997)	Erosion of natural deposits
Copper (ppm)	AL=1.3	90 % below AL=1.3	0.257 at customer tap - none exceeded AL	Erosion of natural deposits; corrosion of household plumbing
Fluoride (ppm)	4	4	0.2 (1997)	Erosion of natural deposits;
Lead (ppb)	0	90% below AL=15	3.8 at customer tap - none exceeded AL	Erosion of natural deposits; corrosion of household plumbing
Nitrate (ppm)	10	10	0.27 (1997)	Runoff from fertilizer use; erosion of natural deposits
Selenium (ppb)	50	50	7.5 (1997)	Erosion of natural deposits
Total Radium (pCi/l)	0	5	0.48 (1997)	Erosion of natural deposits

2. Montgomery County MUD 48

CONTAMINANT (units)	MCLG	MCL (max. level allowed)	City of Houston GROUNDWATER	SOURCES OF CONTAMINANTS
Arsenic (ppb)	N/A	50	<2.0 - 3.0 (1997)	Erosion of natural deposits
Barium (ppm)	2	2	0.190 (1997)	Discharge of drilling wastes; erosion of natural deposits
Copper (ppm)	AL=1.3	90 % below AL=1.3	0.546 at customer tap - none exceeded AL	Erosion of natural deposits; corrosion of household plumbing
Ethylbenzene (ppb)	700	700	0.7	Petroleum products
Fluoride (ppm)	4	4	0.5 (1997)	Erosion of natural deposits
Lead (ppb)	0	90% below AL=15	1.6 at customer tap - none exceeded AL	Erosion of natural deposits; corrosion of household plumbing
Xylenes (ppm)	10	10	0.0036 (1 site)	Petroleum products

UNREGULATED CONTAMINANTS

CONTAMINANT (units)	City of Houston GROUND WATER	SOURCES OF CONTAMINANTS
Chloroform (ppb)	1.1 average <0.5 - 1.7	By-product of drinking water disinfection
Bromodichloromethane (ppb)	3.2 average <0.5 - 5.3	By-product of drinking water disinfection
Dibromochloromethane (ppb)	9.75 average <0.5 - 18	By-product of drinking water disinfection
Bromoform (ppb)	13.85 average <0.5 - 27	By-product of drinking water disinfection
Dibromomethane (ppb)	0.65 average <0.5 - 1.3	By-product of drinking water disinfection

4. Utility District 5

CONTAMINANT (units)	MCLG	MCL (max. level allowed)	City of Houston GROUNDWATER	SOURCES OF CONTAMINANTS
Alpha emitters (pCi/l)	0	15	4.2	Erosion of natural deposits
Arsenic (ppb)	N/A	50	<2.0 - 2.3	Erosion of natural deposits
Barium (ppm)	2	2	0.297	Erosion of natural deposits
Coliform Bacteria	0	less than 5% positive	highest monthly % of positive samples = 1.8	Naturally present in the environment
Copper (ppm)	AL=1.3	90 % below AL=1.3	0.359 at customer tap - none exceeded AL	Erosion of natural deposits; corrosion of household plumbing
Fluoride (ppm)	4	4	0.7	Water additive which promotes strong teeth
Lead (ppb)	0	90% below AL=15	1.1 at customer tap - none exceeded AL	Erosion of natural deposits; corrosion of household plumbing
Nitrate (ppm)	10	10	0.02	Runoff from fertilizer use; erosion of natural deposits
Total Radium (pCi/l)	0	5	1.0	Erosion of natural deposits
Total Trihalomethanes (TTHMs) (ppb)	0	100	<0.5 average <0.5 - 2.2	By-product of drinking water disinfection

* 1999 data unless otherwise specified

THESE TABLES SHOW WHAT
CONTAMINANTS WERE DETECTED IN YOUR DRINKING WATER IN 1999*;
NONE WERE ABOVE THE MCL.

5. Willowchase

CONTAMINANT (units)	MCLG	MCL (max. level allowed)	City of Houston GROUNDWATER	SOURCES OF CONTAMINANTS
Alpha emitters (pCi/l)	0	15	4.6 (1997)	Erosion of natural deposits
Arsenic (ppb)	N/A	50	2.2 (1997)	Erosion of natural deposits
Barium (ppm)	2	2	0.206 (1997)	Erosion of natural deposits
Copper (ppm)	AL=1.3	90 % below AL=1.3	0.094 at customer tap - none exceeded AL	Erosion of natural deposits; corrosion of household plumbing
Lead (ppb)	0	90% below AL=15	11.2 at customer tap - one exceeded AL	Erosion of natural deposits; corrosion of household plumbing
Nitrate (ppm)	10	10	0.25 (1997)	Runoff from fertilizer use; erosion of natural deposits
Total Radium (pCi/l)	0	5	0.7 (1997)	Erosion of natural deposits
Selenium (ppb)	50	50	4.9 (1997)	Erosion of natural deposits

6. Spanish Cove

CONTAMINANT (units)	MCLG	MCL (max. level allowed)	City of Houston GROUNDWATER	SOURCES OF CONTAMINANTS
Arsenic (ppb)	N/A	50	3.2 (1998)	Erosion of natural deposits
Barium (ppm)	2	2	0.356 (1998)	Discharge of drilling wastes; erosion of natural deposits
Beta/photon emitters	0	50 pCi/l	4.9 pCi/l (1995)	Decay of natural and man-made deposits
Copper (ppm)	AL=1.3	90 % below AL=1.3	0.237 at customer tap - none exceeded AL (1997)	Erosion of natural deposits; corrosion of household plumbing
Fluoride (ppm)	4	4	0.12 (1998)	Erosion of natural deposits;
Lead (ppb)	0	90% below AL=15	2.18 at customer tap - none exceeded AL (1997)	Erosion of natural deposits; corrosion of household plumbing

7. Harris County WCID 76

CONTAMINANT (units)	MCLG	MCL (max. level allowed)	City of Houston GROUNDWATER	SOURCES OF CONTAMINANTS
Alpha emitters (pCi/l)	0	15	9.3 (1998)	Erosion of natural deposits
Barium (ppm)	2	2	0.355 (1997)	Erosion of natural deposits
Beta/photon emitters	0	50 pCi/l	5 pCi/l (1998)	Decay of natural and man-made deposits
Coliform Bacteria	0	less than 5% positive	highest monthly # of positive samples = 1	Naturally present in the environment
Copper (ppm)	AL=1.3	90 % below AL=1.3	0.382 at customer tap - none exceeded AL	Erosion of natural deposits; corrosion of household plumbing
Fluoride (ppm)	4	4	0.3 (1997)	Erosion of natural deposits;
Lead (ppb)	0	90% below AL=15	5.5 at customer tap - one tap exceeded AL	Erosion of natural deposits; corrosion of household plumbing
Total Radium (pCi/l)	0	5	1.52 (1998)	Erosion of natural deposits

8. Hunterwood

CONTAMINANT (units)	MCLG	MCL (max. level allowed)	City of Houston GROUNDWATER	SOURCES OF CONTAMINANTS
Alpha emitters (pCi/l)	0	15	<2.0 - 2.5 (1998)	Erosion of natural deposits
Arsenic (ppb)	N/A	50	<2.0 - 6.9 (1994)**	Erosion of natural deposits
Barium (ppm)	2	2	0.255 (1994)**	Discharge of drilling wastes; erosion of natural deposits
Copper (ppm)	AL=1.3	90 % below AL=1.3	0.150 at customer tap - none exceeded AL	Erosion of natural deposits; corrosion of household plumbing
Fluoride (ppm)	4	4	0.5 (1994)**	Erosion of natural deposits;
Lead (ppb)	0	90% below AL=15	4.0 at customer tap - one tap exceeded AL	Erosion of natural deposits; corrosion of household plumbing
Nitrate (ppm)	10	10	0.04 (1994)**	Runoff from fertilizer use; erosion of natural deposits

** This is the most recent available data. Hunterwood Water System is scheduled for sampling for metals and minerals this year (2000).

9. District 82

CONTAMINANT (units)	MCLG	MCL (max. level allowed)	City of Houston GROUNDWATER	SOURCES OF CONTAMINANTS
Alpha emitters (pCi/l)	0	15	2.1 (1998)	Erosion of natural deposits
Beta/photon emitters	0	50 pCi/l	4.0 pCi/l (1998)	Decay of natural and man-made deposits
Copper (ppm)	AL=1.3	90 % below AL=1.3	0.145 at customer tap - none exceeded AL (1997)	Erosion of natural deposits; corrosion of household plumbing
Fluoride (ppm)	4	4	0.1 (1998)	Erosion of natural deposits;
Lead (ppb)	0	90% below AL=15	2.7 at customer tap - none exceeded AL (1997)	Erosion of natural deposits; corrosion of household plumbing
Nitrate (ppm)	10	10	0.22 (1998)	Runoff from fertilizer use; erosion of natural deposits

10. Belleau Wood

CONTAMINANT (units)	MCLG	MCL (max. level allowed)	City of Houston GROUNDWATER	SOURCES OF CONTAMINANTS
Alpha emitters (pCi/l)	0	15	4.8 (1996)	Erosion of natural deposits
Arsenic (ppb)	N/A	50	3.9 (1996)	Erosion of natural deposits
Barium (ppm)	2	2	0.340 (1998)	Discharge of drilling wastes; erosion of natural deposits
Beta/photon emitters	0	50 pCi/l	5.3 pCi/l (1996)	Decay of natural and man-made deposits
Copper (ppm)	AL=1.3	90 % below AL=1.3	0.081 at customer tap - none exceeded AL	Erosion of natural deposits; corrosion of household plumbing
Fluoride (ppm)	4	4	0.1 (1998)	Erosion of natural deposits;
Lead (ppb)	0	90% below AL=15	2.1 at customer tap - none exceeded AL	Erosion of natural deposits; corrosion of household plumbing
Total Radium (pCi/l)	0	5	0.8 (1996)	Erosion of natural deposits

11. District 73

CONTAMINANT (units)	MCLG	MCL (max. level allowed)	City of Houston GROUNDWATER	SOURCES OF CONTAMINANTS
Alpha emitters (pCi/l)	0	15	3.5 (1997)	Erosion of natural deposits
Barium (ppm)	2	2	0.230 (1997)	Discharge of drilling wastes; erosion of natural deposits
Copper (ppm)	AL=1.3	90 % below AL=1.3	0.119 at customer tap - none exceeded AL	Erosion of natural deposits; corrosion of household plumbing
Ethylbenzene (ppb)	700	700	1.8 average <0.5 - 2.3	Petrochemical products
Fluoride (ppm)	4	4	0.2 (1997)	Erosion of natural deposits;
Lead (ppb)	0	90% below AL=15	2.2 at customer tap - one tap exceeded AL	Erosion of natural deposits; corrosion of household plumbing
Nitrate (ppm)	10	10	0.04 (1997)	Runoff from fertilizer use; erosion of natural deposits
Selenium (ppb)	50	50	3.2 (1997)	Erosion of natural deposits
Toluene (ppm)	1	1	0.0009 average <0.0005 - 0.0011	Petrochemical products
Total Radium (pCi/l)	0	5	0.51 (1997)	Erosion of natural deposits
Xylenes (ppm)	10	10	0.0082 average <0.001 - 0.007	Petrochemical products

UNREGULATED CONTAMINANTS

CONTAMINANT (units)	City of Houston GROUNDWATER	SOURCES OF CONTAMINANTS
Chloroform (ppb)	5.93 average 0.5 - 9.6	By-product of drinking water disinfection
Bromodichloromethane (ppb)	5.53 average 0.5 - 9.3	By-product of drinking water disinfection
Dibromochloromethane (ppb)	3.8 average 0.5 - 7.7	By-product of drinking water disinfection
Bromoform (ppb)	0.9 average 0.0 - 3.0	By-product of drinking water disinfection

12. Forest Cove

CONTAMINANT (units)	MCLG	MCL (max. level allowed)	City of Houston GROUNDWATER	SOURCES OF CONTAMINANTS
Alpha emitters (pCi/l)	0	15	3.0	Erosion of natural deposits
Barium (ppm)	2	2	0.258	Discharge of drilling wastes; erosion of natural deposits
Copper (ppm)	AL=1.3	90 % below AL=1.3	0.1 at customer tap - none exceeded AL (1998)	Erosion of natural deposits; corrosion of household plumbing
Lead (ppb)	0	90% below AL=15	13.8 at customer tap - two exceeded AL (1998)	Erosion of natural deposits; corrosion of household plumbing
Nitrate (ppm)	10	10	0.04	Runoff from fertilizer use; erosion of natural products

The City of Houston Commitment
to Protecting Drinking Water

To assure the finest water is delivered to your tap, the City has joined with other utilities and the Environmental Protection Agency in the Partnership For Safe Water, which requires its members to achieve quality goals surpassing the required regulations. The East Water Purification Plant I received the “Director’s Certificate of Recognition” awarded in June 1999, by the American Water Works Association (AWWA). For further details, see the EPA web site: www.epa.gov/OGWDW/psw/psw.html. A Cross Connection Control Program has been in place since 1988 and more recently, a Drought Management Plan has been developed.

Definitions

Maximum Contaminant Level (MCL): The highest level of a contaminant allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available technology.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

* 1999 data unless otherwise specified

WATER QUALITY REPORT 1999

City of Houston
Department of
Public Works
and Engineering



Water Standards Governed by Federal Agencies

In order to ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

SPECIAL NOTICE FOR THE ELDERLY, INFANTS, CANCER PATIENTS, PEOPLE WITH HIV/AIDS OR OTHER IMMUNE PROBLEMS:

You may be more vulnerable to certain microbial contaminants in drinking water than the general population. In particular, infection by *Cryptosporidium* is of concern. Infants, some elderly or IMMUNO-COMPROMISED PERSONS such as those who have undergone CHEMOTHERAPY for CANCER; those who have undergone ORGAN TRANSPLANTS; those who are undergoing treatment with steroids; and people with HIV/AIDS or other immune system disorders can be particularly at risk from infections. You should seek advice about drinking water from your physician or healthcare provider. Additional guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* are available from:

Safe Drinking Water Hotline 800/426-4791 or your local Health Department or District 713/794-9181.

Questions You Have Asked Us

What is the reason for a change in taste and odor of the water?

Most changes are caused as the result of seasonal algae blooms in the surface water sources. You may report any unusual taste or odor to **713/837-0600**.

Is nitrate level in water a concern for the citizens of Houston?

No. While nitrate in drinking water at levels above 10 parts per million (ppm) poses a health risk for infants of less than six months of age, the City of Houston water is consistently below 1 ppm.

Has the City of Houston tested for radon?

EPA is currently preparing a standard for radon in which the City of Houston will be in full compliance. Testing of our wells conducted in 1995 showed an average radon level of 700 pCi/l in the aquifer. Water received at the tap will have significantly lower levels due to the short lived nature of radon.

Is there Giardia or Cryptosporidium in our water supply?

Giardia or Cryptosporidium are not found in deep wells, such as the City's, which are protected from surface water contamination. Since 1993, we have been routinely monitoring our rivers and treated water leaving our filtration plants for these two organisms. To date, we have detected no confirmed occurrences of either of these in any of our drinking water. Only one each of these organisms has been detected in our untreated river waters.

What about lead in tap water?

The City of Houston has conducted extensive tests over the past six years and concentrations have been less than half EPA's guidelines. Most lead occurs as the result of leaching from household plumbing particularly faucets. You can minimize your exposure by flushing your tap for 30 seconds prior to drinking.

What about arsenic levels?

EPA is reviewing the drinking water standard for arsenic recognizing that while traces of arsenic in the diet are beneficial, chronic exposure to concentrations greater than the maximum contaminant level (MCL) may cause health problems. The City of Houston's water is consistently less than 20 percent of the current MCL.

Customer Service

is our **#1** priority. We take pride in the water which is provided to our customers and are continually improving.

To accomplish this goal. . . **we need your help.** Any time you find your water's quality below your expectations please contact us at

713/837-0600. We'll respond promptly and professionally.

If other people, such as tenants, receive water from you, it is important that you provide this notice to them by posting it in a prominent location or by hand or mail delivery.

Please feel free to copy this report. Visit our web site: www.ci.houston.tx.us/departme/works/puwater.html.